

INTERNATIONAL PRELIMINARY EXAMINATION REPORT



(PCT Article 36 and Rule 70)

Applicant's or agent's file reference SN132	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/EP 03/09160	International filing date (day/month/year) 01.08.2003	Priority date (day/month/year) 16.08.2002
International Patent Classification (IPC) or both national classification and IPC B01D19/04		
Applicant DOW CORNING CORPORATION et al.		

- This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
- This REPORT consists of a total of 4 sheets, including this cover sheet.
 - ☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 5 sheets.

- This report contains indications relating to the following items:
 - I ☒ Basis of the opinion
 - II ☐ Priority
 - III ☒ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
 - IV ☐ Lack of unity of invention
 - V ☐ Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
 - VI ☐ Certain documents cited
 - VII ☐ Certain defects in the international application
 - VIII ☐ Certain observations on the international application

Date of submission of the demand 02.03.2004	Date of completion of this report 11.11.2004
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INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/EP 03/09160

I. Basis of the report

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

Description, Pages

1-28 as originally filed

Claims, Numbers

1-22 received on 22.07.2004 with letter of 18.07.2004

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
- ☐ the claims, Nos.:
- ☐ the drawings, sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

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III. Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

1. The questions whether the claimed invention appears to be novel, to involve an inventive step (to be non-obvious), or to be industrially applicable have not been examined in respect of:

☒ the entire international application,

☐ claims Nos.

because:

☐ the said international application, or the said claims Nos. relate to the following subject matter which does not require an international preliminary examination (specify):

☒ the description, claims or drawings (*indicate particular elements below*) or said claims Nos. are so unclear that no meaningful opinion could be formed (*specify*):

see separate sheet

☐ the claims, or said claims Nos. are so inadequately supported by the description that no meaningful opinion could be formed.

☐ no international search report has been established for the said claims Nos.

2. A meaningful international preliminary examination cannot be carried out due to the failure of the nucleotide and/or amino acid sequence listing to comply with the standard provided for in Annex C of the Administrative Instructions:

☐ the written form has not been furnished or does not comply with the Standard.

☐ the computer readable form has not been furnished or does not comply with the Standard.

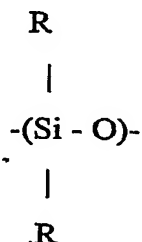
III. Non-establishment of opinion

It is not clear what is actually intended to be claimed, i.e. wherein the invention exactly resides. There are several inconsistencies between the claims themselves and between the claims and the description. Moreover certain definitions are unclear.

- 1.1 The meaning of the expression "**substantially** fully esterified" used in claims 1 and 12 is completely obscure. This term does not permit a net delimitation of the claims nor a clear distinction vis-à-vis the prior art. The reader or potential infringer is not in a position to determine with certainty whether a particular composition falls within the scope of claims 1 or 12 or not. It is stressed that the claims must be clear by themselves without reference to the description.
- 1.2 The scope of claim 10 is broader than the scope of claim 1 on which claim 10 is dependent. Claim 1 only mentions alkyl, aryl and aralkyl groups as R groups whereas claim 10 recites aliphatic hydrocarbon (e.g. alkenyl, alkynyl), divalent aliphatic organic (e.g. with -O-, -S- or -NH- chain members) and aromatic (e.g. heteroaromatic) groups which are much broader.
- 1.3 Dependent claim 6 concerns additional components of the additive composition which contain more polar groups than the carboxylate ester groups of the polyol ester. First, the difference between these components and the "substantially fully esterified" polyol ester is not clear (cf. claim 7). Second, it is questionable whether the fact that the polyol ester is non-polar is an essential feature of the invention when the additive composition may contain up to 50% of the polar component and the polyol ester may only be "substantially fully esterified".
- 1.4 Claim 12 is a second independent composition claim wherein the definitions of the polydiorganosiloxane fluid and additive composition components are different from those of claim 1.
- 1.5 The description does not contain an exact counter-part for claim 1 nor for claim 12 (consider especially the additive composition components).

CLAIMS

1. A foam control composition comprising a polydiorganosiloxane fluid comprising units of the formula

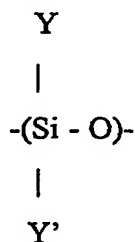


where each group R, which may be the same or different, is selected from an alkyl group having 1 to 36 carbon atoms or an aryl group or aralkyl group having up to 36 carbon atoms, the mean number of carbon atoms in the groups R being at least 1.3, and an additive composition of melting point 35 to 100°C comprising a non-polar polyol ester which is a polyol substantially fully esterified by carboxylate groups each having 7 to 36 carbon atoms.

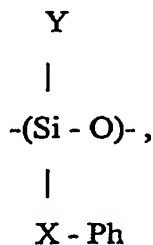
2. A foam control composition according to Claim 1, characterized in that the polyol ester is a glycerol triester.
3. A foam control composition according to Claim 1 or Claim 2, characterized in that the polyol ester is substantially fully esterified by carboxylate groups each having 14 to 22 carbon atoms.
4. A foam control composition according to Claim 3, characterized in that glycerol tripalmitate forms at least 30% by weight of the polyol ester.
5. A foam control composition according to any of Claims 1 to 4, characterized in that the additive composition comprises a mixture of polyol esters containing carboxylate groups of different carbon chain length.
6. A foam control composition according to any of Claims 1 to 5, characterized in that the additive composition also contains up to 50% by weight of a

component which is miscible with the polyol ester and contains groups more polar than the carboxylate ester groups of the polyol ester.

7. A foam control composition according to Claim 6, characterized in that the said groups more polar than the carboxylate ester groups of the polyol ester are unesterified -OH groups.
8. A foam control composition according to Claim 6, characterized in that the said groups more polar than the carboxylate ester groups of the polyol ester are unesterified carboxylic acid groups.
9. A foam control composition according to Claim 6, characterized in that the said groups more polar than the carboxylate ester groups of polyol ester are amide or amino groups.
10. A foam control composition according to any of Claims 1 to 9, characterized in that the polysiloxane fluid is a polysiloxane comprising at least 10% diorganosiloxane units of the formula



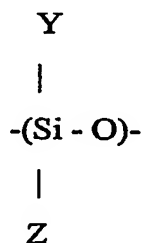
and up to 90% diorganosiloxane units of the formula



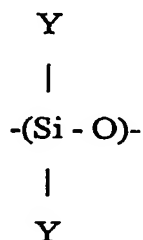
wherein X denotes a divalent aliphatic organic group bonded to silicon through a carbon atom; Ph denotes an aromatic group; Y denotes an alkyl group having

1 to 4 carbon atoms; and Y' denotes an aliphatic hydrocarbon group having 1 to 24 carbon atoms.

11. A foam control composition according to any of Claims 1 to 9, characterized in that the polysiloxane fluid is a polysiloxane comprising 50-100% diorganosiloxane units of the formula

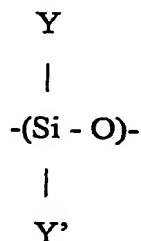


and optionally up to 50% diorganosiloxane units of the formula

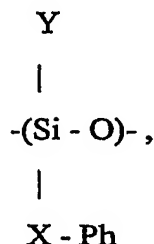


wherein Y denotes an alkyl group having 1 to 4 carbon atoms and Z denotes an alkyl group having 6 to 18 carbon atoms.

12. A foam control composition comprising a polydiorganosiloxane fluid comprising at least 10% diorganosiloxane units of the formula



and up to 90% diorganosiloxane units of the formula



wherein X denotes a divalent aliphatic organic group bonded to silicon through a carbon atom; Ph denotes an aromatic group; Y denotes an alkyl group having 1 to 4 carbon atoms; and Y' denotes an aliphatic hydrocarbon group having 1 to 24 carbon atoms, and an additive composition comprising a non-polar organic material of melting point 35 to 100°C which is miscible with the polydiorganosiloxane fluid.

13. A foam control composition according to Claim 12, characterized in that the substantially non-polar material comprises at least one paraffin wax, optionally blended with microcrystalline wax.
14. A foam control composition according to any of Claims 1 to 13, characterized in that the composition further contains an organosilicon resin.
15. A foam control composition according to claim 14, characterized in that the organosilicon resin is a siloxane resin consisting of monovalent trihydrocarbonsiloxy (M) groups of the formula $\text{R}''_3\text{SiO}_{1/2}$ and tetrafunctional (Q) groups $\text{SiO}_{4/2}$ wherein R'' denotes an alkyl group and the number ratio of M groups to Q groups is in the range 0.4:1 to 1.1:1.

16. A foam control composition according to any of Claims 1 to 15, characterized in that the composition further contains a hydrophobic filler with an average particle size of from 0.5 to 30 μ m.
17. A foam control composition according to any of Claims 1 to 16, characterized in that the additive composition is present at 20-200% by weight based on the polysiloxane fluid.
18. A granulated foam control agent comprising a foam control composition according to any of Claims 1 to 17 supported on a particulate carrier.
19. A granulated foam control agent according to Claim 18, characterized in that a water-soluble or water-dispersible binder is also deposited on the carrier particles.
20. A process for the production of a granulated foam control agent according to Claim 18 or Claim 19, characterized in that the polysiloxane fluid optionally containing hydrophobic filler and/or organosilicon resin is mixed with the additive composition and the mixture is deposited on the carrier particles in non-aqueous liquid form.
21. A process according to Claim 20, characterized in that the said mixture is deposited on the carrier particles at a temperature in the range 40-100°C.
22. A process according to Claim 20 or Claim 21, characterized in that a water-soluble or water-dispersible binder is separately deposited on the carrier particles.